

# From Garden to Pharmacy: The Nutritional Benefits and Therapeutic Applications of Edible Plants in Traditional and Modern Medicine

Omutindo Nyakayo A.

Faculty of Science and Technology Kampala International University Uganda

## ABSTRACT

Edible plants have long been recognized for their nutritional and therapeutic benefits, forming an essential part of both traditional and modern dietary practices. These plants, rich in vitamins, minerals, fiber, and phytochemicals, particularly antioxidants, promote health and overall well-being. Notable examples such as quinoa, moringa, and various wild edible plants demonstrate the intersection of nutritional science and cultural wisdom. These plants offer a wide range of health benefits, from addressing malnutrition and aiding weight control to preventing chronic diseases such as cancer and diabetes. The increasing integration of these plants into modern eating practices reflects a growing awareness of their health-promoting properties and highlights the importance of combining traditional botanical knowledge with contemporary nutrition. This paper explores the diverse roles of edible plants in health promotion, disease prevention, and sustainable food practices, underscoring the significance of their inclusion in both traditional and modern diets.

**Keywords:** Edible plants, nutrition, therapeutic applications, quinoa, moringa and phytochemicals

## INTRODUCTION

Edible plants are recognized for their nutritional benefits and therapeutic applications, forming an essential part of traditional medicine and modern eating practices. The complex interaction between nutrition and health emphasizes the importance of incorporating a diversified variety of edible plants into daily diets [1, 2, 3]. Numerous studies have documented the rich nutrient profiles of various edible plants, which usually include essential vitamins, minerals, eating fibers and a multitude of phytochemicals, particularly antioxidants that promote health and overall well-being. A prominent example is Quinoa (*Chenopodium Quinoa* Willd.) [4, 5]. A pseudocereal that has gained substantial attention due to its impressive nutrient density. Quinoa is considered a complete protein, containing all nine essential amino acids, making it an exceptional food choice, especially for vegetarians and vegan [6, 7, 8]. High levels of food fiber in quinoa also support digestive health and contribute to

satiety, making it beneficial for weight control. Quinoa functional dietary attributes stimulated its incorporation into various culinary practices worldwide, reflecting its adaptability and nutritional value [9, 10]. Similarly, Moringa Oleifera emerged as another critical edible plant, with numerous health benefits attributed to their high concentrations of vitamins, minerals and essential bioactive compounds. Research suggests that Moringa has a unique potential to address nutritional deficiencies, especially in developing regions where malnutrition prevails [11, 12, 13, 14]. In addition, studies on Moringa indicate a possible role in cancer prevention due to their antioxidant properties, which fights oxidative stress and inflammation, fundamental factors in cancer progression. Traditional medicine systems have used Moringa for centuries, emphasizing their importance in eating and therapeutic contexts [15].

### Therapeutic applications of edible plants

Therapeutic applications of edible plants extend to wild varieties that have been historically employed by

their health promotion attributes. An increase in interest in wild edible plants led to research

highlighting the nutritional and health benefits of these species, particularly those rich in phenolic compounds [16, 17]. Phenolics exhibit various biological activities, including antioxidant, anti-inflammatory and anticancer properties, all contributing to higher health results [18, 19, 20]. The consumption of these plants not only enriches food intake, but also offers a way to integrate traditional botanical knowledge with modern nutritional science. In addition, the double goal of many edible plants, as food and medicine illustrate

#### **The integration of edible plants in modern eating practices**

The integration of these edible plants in modern eating practices presents an opportunity for nutritional policies and improved health strategies. The resurgence of interest in plant-based diets, driven by increased health awareness and environmental sustainability, aligns with the virtues of many edible plants. As consumers become more informed about the benefits of incorporating a greater variety of plant-based foods into their diets, the meaning of these edible plants continues to resonate within eating guidelines and public health messages [25]. Through nutrition lenses and therapeutic applications, the various edible plant attributes invite more exploration as their roles in health promotion, disease prevention and support cultural traditions remain crucial in traditional and contemporary contexts [26]. The exploration of specific edible plants reveals a rich tapestry of nutritional advantages and therapeutic applications which fill traditional and contemporary practices. Ginger (*Zingiber Officinale*) is one of the most studied plants in this regard. Traditionally used in Chinese medicine, ginger has been recognized for its anti-inflammatory and digestive health benefits. Modern scientific surveys corroborate these claims, demonstrating the effectiveness of ginger in the reduction of nausea and improving gastrointestinal motility [27]. Bioactive compounds such as gingerol present in ginger are mainly responsible for its therapeutic properties, highlighting the transparent transition of knowledge of traditional wisdom to contemporary food applications. Sweet potatoes

#### **The culture and consumption of edible fungi**

The culture and consumption of edible fungi increased in the middle of a world movement towards a sustainable diet. Mushrooms, rented not only for their unique flavors but also for their nutritional qualities, have been linked to an improved immune function and to potential anti-tumor effects [31, 32]. Varieties such as Shiitake and Reishi are not only culinary staples in various cultures, but have also found their place in holistic health practices,

how cultural practices and traditional knowledge shaped eating habits. Ethnobotanical studies reveal that various plant species used in folk medicine usually correspond to those recognized for its nutritional benefits, highlighting a holistic health approach that transcends only the obtaining of livelihood [21, 22, 23]. This traditional wisdom is increasingly supported by contemporary scientific research, which continues to discover the properties that promote the health of plants valued historically in indigenous healing practices [24].

(*Ipomoea Batatas*) represent another significant edible plant distinguished for its rich nutritional profile and its favorable health properties. The high concentration of beta-carotene, fiber and vitamins found in sweet potatoes has been linked to powerful antioxidant activity, which can reduce the risk of chronic diseases such as obesity and diabetes [28]. The versatility of sweet potatoes in modern diets, from oven-cooked dishes to health-oriented smoothies, underlines their essential role in the promotion of global food health. Likewise, the Gombo (*Abelmoschus esculentus*), a must of various kitchens, has acquired recognition for its positive implications for health. Research indicates that Gombo is a source of dietary fiber, which facilitates digestion, and can also have anti-diabetic properties by regulating blood sugar [29]. Its inclusion in various culinary traditions contributes not only to nutritional contribution, but also reflects an increasing consciousness of the link between food and health both in traditional regimes and modern nutritional paradigms. The mulberry also illustrates the intersection of traditional and modern eating practices. Traditionally used for its medicinal properties in various crops, the mulberry was examined for its potential advantages in glycemic control and as an antioxidant agent [30]. The growing incorporation of blackberries in food, smoothies and supplements is an evolution towards the use of this fruit to take advantage of its health benefits in contemporary diets, aligning on the accent on functional food [31].

strengthening the importance of mushrooms as functional food sources. Together, these examples illustrate the deep impact of edible plants on health and nutrition, manifesting themselves both as cultural staples and modern food components. The integration of traditional knowledge concerning these plants promotes a more in-depth understanding of their advantages, emphasizing the importance of maintaining these practices in current

discussions on health and food recommendations [33]. This interaction between traditional wisdom and scientific validation serves as a crucial basis for

promoting sustainable and health -focused food practices.

## CONCLUSION

Edible plants serve as a bridge between traditional wisdom and modern scientific advancements, demonstrating their multifaceted role in promoting health and well-being. The diverse nutritional profiles and therapeutic properties of plants such as quinoa, moringa, ginger, and sweet potatoes provide valuable contributions to both traditional and contemporary diets. Their role in addressing global health challenges, including malnutrition and chronic diseases, underscores the importance of incorporating these plants into daily eating practices. Furthermore,

the growing interest in plant-based diets aligns with the global shift towards sustainability and health-conscious eating. By integrating these plants into nutrition policies and public health initiatives, we can harness their full potential for disease prevention, health promotion, and environmental sustainability. Ultimately, the continued exploration of edible plants through both ethnobotanical knowledge and scientific research holds promise for enhancing global health and promoting culturally enriched dietary practices.

## REFERENCES

1. Awuchi CG. Medicinal plants: the medical, food, and nutritional biochemistry and uses. *International Journal of Advanced Academic Research*. 2019 Jan;5(11):220-41.
2. Pereira AG, Fraga-Corral M, García-Oliveira P, Jimenez-Lopez C, Lourenço-Lopes C, Carpena M, Otero P, Gullón P, Prieto MA, Simal-Gandara J. Culinary and nutritional value of edible wild plants from northern Spain rich in phenolic compounds with potential health benefits. *Food & function*. 2020;11(10):8493-515.
3. Anwar T, Qureshi H, Shahzadi S, Siddiqi EH, Ali HM, Abdelhamid MM, Nazim M. Exploring the benefits of wild plants in dietary nutrition: investigating perspectives, choices, health impacts and sustainable practices. *BMC Complementary Medicine and Therapies*. 2024 Feb 14;24(1):86.
4. Alamgir AN. Therapeutic use of medicinal plants and their extracts: volume 1. Cham: Springer; 2017.
5. Shahrajabian MH, Sun W, Cheng Q. Clinical aspects and health benefits of ginger (*Zingiber officinale*) in both traditional Chinese medicine and modern industry. *Acta agriculturae scandinavica, section b—Soil & Plant Science*. 2019 Aug 18;69(6):546-56.
6. Adeleke BS, Babalola OO. Oilseed crop sunflower (*Helianthus annuus*) as a source of food: Nutritional and health benefits. *Food Science & Nutrition*. 2020 Sep;8(9):4666-84.
7. Khoo HE, Azlan A, Tang ST, Lim SM. Anthocyanidins and anthocyanins: Colored pigments as food, pharmaceutical ingredients, and the potential health benefits. *Food & nutrition research*. 2017 Jan 1;61(1):1361779.
8. Graf BL, Rojas-Silva P, Rojo LE, Delatorre-Herrera J, Baldeón ME, Raskin I. Innovations in health value and functional food development of quinoa (*Chenopodium quinoa* Willd.). *Comprehensive reviews in food science and food safety*. 2015 Jul;14(4):431-45.
9. Abdull Razis AF, Ibrahim MD, Kntayya SB. Health benefits of Moringa oleifera. *Asian pacific journal of cancer prevention*. 2014;15(20):8571-6.
10. Orji OU, Ibiam UA, Aja PM, Ugwu P, Uraku AJ, Aloke C, Obasi OD, Nwali BU. Evaluation of the phytochemical and nutritional profiles of *Cnidioscolus aconitifolius* leaf collected in Abakaliki South East Nigeria. *World J Med Sci*. 2016;13(3):213-217.
11. Enechi OC, Okpe CC, Ibe GN, Omeje KO, Ugwu Okechukwu PC. Effect of *Buchholzia coriacea* methanol extract on haematological indices and liver function parameters in *Plasmodium berghei*-infected mice. *Glob Veterinaria*. 2016;16(1):57-66.
12. Alum EU, Uti DE, Ugwu Okechukwu PC, Alum BN. Toward a cure—Advancing HIV/AIDS treatment modalities beyond antiretroviral therapy: A review. *Med*. 2024;103(27):e38768.
13. Obeagu EI, Bot YS, Obeagu GU, Alum EU, Ugwu Okechukwu PC. Anaemia and risk factors in lactating mothers: A concern in Africa. *Int J Innov Appl Res*. 2024;11(2):15-17.
14. Alum EU, Ibiam UA, Ugwuja EI, Aja PM, Igwenyi IO, Offor CE, Orji UO, Ezeani NN, Ugwu OP, Aloke C, Egwu CO. Antioxidant effect of *Buchholzia coriacea* ethanol leaf

- extract and fractions on Freund's adjuvant-induced arthritis in albino rats: A comparative study. 2022;59(1):31-45.
15. Offor CE, Ugwu Okechukwu PC, Alum EU. Determination of ascorbic acid contents of fruits and vegetables. Int J Pharm Med Sci. 2015;5:1-3.
16. Amusa MO, Adepoju AO, Ugwu Okechukwu PC, Alum EU, Obeagu EI, Okon MB, Aja PM, Samson AOS. Effect of ethanol leaf extract of *Chromolaena odorata* on lipid profile of streptozotocin-induced diabetic Wistar albino rats. IAA J Biol Sci. 2024;10(1):109-117.
17. Amusa MO, Adepoju AO, Ugwu Okechukwu PC, Alum EU, Obeagu EI, Okon MB, Aja PM, Samson AOS. Effect of ethanol leaf extract of *Chromolaena odorata* on lipid profile of streptozotocin-induced diabetic Wistar albino rats. IAA J Biol Sci. 2024;10(1):109-117.
18. Enechi YS, Ugwu OC, Ugwu Okechukwu PC, Omeh K. Evaluation of the antinutrient levels of *Ceiba pentandra* leaves. IJRRPAS. 2013;3(3):394-400.
19. Ugwu Okechukwu PC, Nwodo OFC, Joshua EP, Odo CE, Ossai EC. Effect of ethanol leaf extract of *Moringa oleifera* on lipid profile of malaria-infected mice. Res J Pharm Biol Chem Sci. 2014;4(1):1324-1332.
20. Ugwu OPC, Alum EU, Uhama KC. Dual burden of diabetes mellitus and malaria: Exploring the role of phytochemicals and vitamins in disease management. Res Inven J Res Med Sci. 2024;3(2):38-49.
21. Alum EU, Ugwu Okechukwu PC, Aja PM, Obeagu EI, Inya JE, Onyeije AP, Agu E, Awuchi CG. Restorative effects of ethanolic leaf extract of *Datura stramonium* against methotrexate-induced hematological impairments. Cogent Food Agric. 2013;9(1):2258774.
22. Offor CE, Nwankwegu FC, Joshua EP, Ugwu Okechukwu PC. Acute toxicity investigation and anti-diarrhoeal effect of the chloroform-methanol extract of the leaves of *Persea americana*. Iran J Pharm Res. 2014;13(2):651-658. PMID: 25237361; PMCID: PMC4157041.
23. Afiukwa CA, Oko AO, Afiukwa JN, Ugwu Okechukwu PC, Ali FU, Ossai EC. Proximate and mineral element compositions of five edible wild grown mushroom species in Abakaliki, southeast Nigeria. Res J Pharm Biol Chem Sci. 2013;4:1056-1064.
24. Ugwu OP, Alum EU, Ugwu JN, Eze VH, Ugwu CN, Ogenyi FC, Okon MB. Harnessing technology for infectious disease response in conflict zones: Challenges, innovations, and policy implications. Med. 2024;103(28):e38834.
25. Obeagu EI, Ugwu OPC, Alum EU. Poor glycaemic control among diabetic patients; A review on associated factors. Newport Int J Res Med Sci (NIJRMS). 2023;3(1):30-33.
26. Nwaka AC, Ikechi-Agba MC, Okechukwu PU, Igwenyi IO, Agbafor KN, Orji OU, Ezugwu AL. The effects of ethanol extracts of *Jatropha curcas* on some hematological parameters of chloroform intoxicated rats. Am-Eur J Sci Res. 2015;10(1):45-49.
27. Ezeani NN, Ibiam UA, Orji OU, Igwenyi IO, Aloke C, Alum E, Aja PM, Ugwu OP. Effects of aqueous and ethanol root extracts of *Ola x subscopioidea* on inflammatory parameters in complete Freund's adjuvant-collagen type II induced arthritic albino rats. Pharmacogn J. 2019;11(1)
28. Hosseinzadeh S, Jafarikukhdan A, Hosseini A, Armand R. The application of medicinal plants in traditional and modern medicine: a review of *Thymus vulgaris*. International Journal of Clinical Medicine. 2015 Sep 2;6(9):635-42.
29. Mohanraj R, Sivasankar S. Sweet Potato (*Ipomoea batatas* [L.] Lam)-A valuable medicinal food: A review. Journal of medicinal food. 2014 Jul 1;17(7):733-41.
30. Gemedegioris HF, Ratta N, Haki GD, Woldegiorgis AZ, Beyene F. Nutritional quality and health benefits of okra (*Abelmoschus esculentus*): A review. J Food Process Technol. 2015 Mar 21;6(458):2.
31. Santiya M, Aluko RE, Dhewa T, Moreno-Rojas JM. Potential health benefits of plant food-derived bioactive components: An overview. Foods. 2021 Apr 12;10(4):839.
32. Yuan Q, Zhao L. The Mulberry (*Morus alba* L.) Fruit A Review of Characteristic Components and Health Benefits. Journal of Agricultural and Food Chemistry. 2017 Dec 6;65(48):10383-94.
33. Valverde ME, Hernández-Pérez T, Paredes-López O. Edible mushrooms: improving human health and promoting quality life. International journal of microbiology. 2015;2015(1):376387.

**CITE AS: Omutindo Nyakayo A. (2025). From Garden to Pharmacy: The Nutritional Benefits and Therapeutic Applications of Edible Plants in Traditional and Modern Medicine. INOSR Scientific Research 12(1):48-52. <https://doi.org/10.59298/INOSRSR/2025/12.1.485200>**